



Armed Forces College of Medicine

AFCM



Anterior Abdominal Wall II

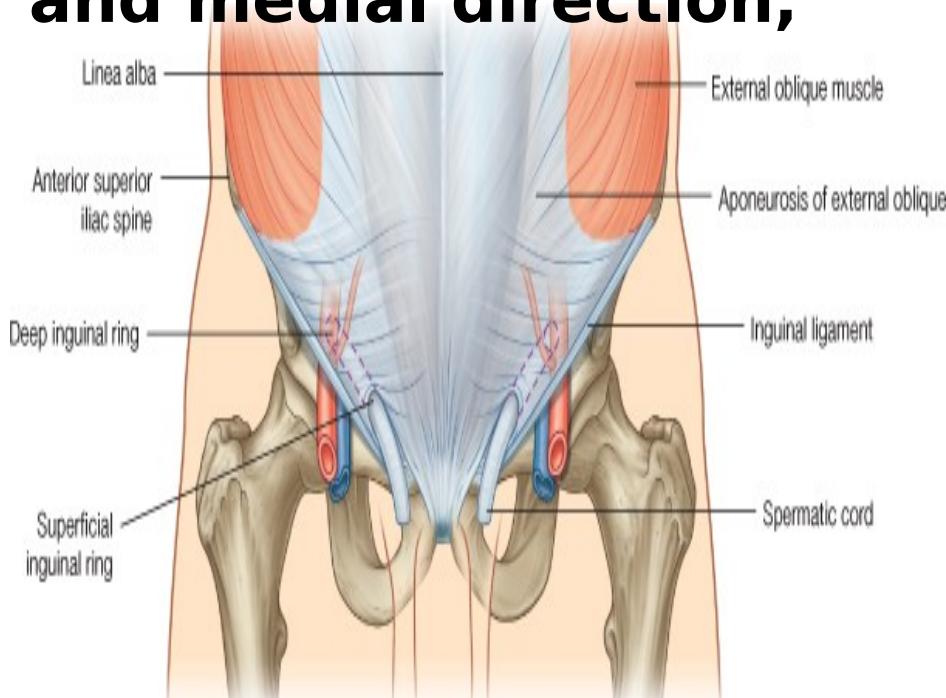
Inguinal Canal

L.O.S

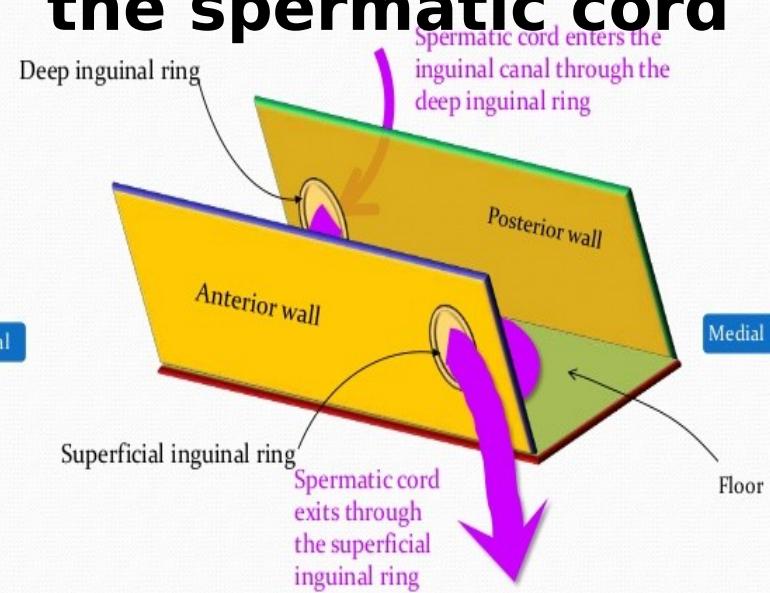
- By the end of this lecture, each student should be able to:
- **Describe** the inguinal canal, its length, walls & contents.
- **Describe** the superficial & deep inguinal rings.
- **Differentiate** between direct & indirect inguinal hernias.

INGUINAL CANAL

It is an oblique intermuscular passage extending in a downward and medial direction,

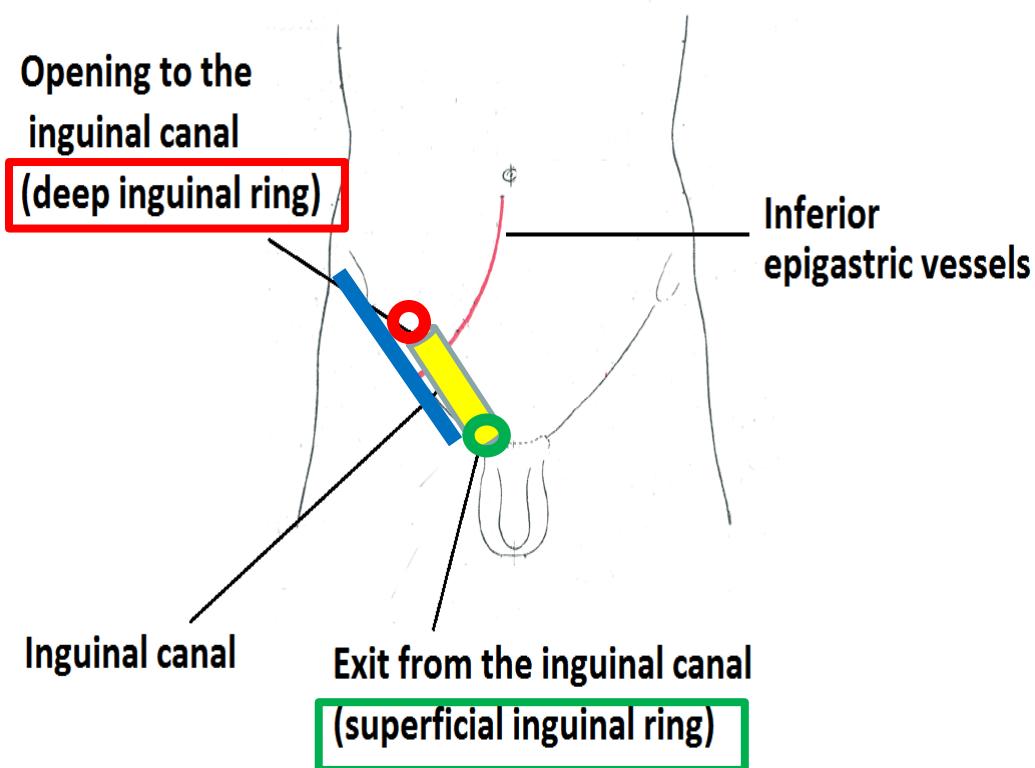


Begins at the deep inguinal ring & ends at the superficial inguinal ring.
Sex diff.: Larger in males & contains the spermatic cord



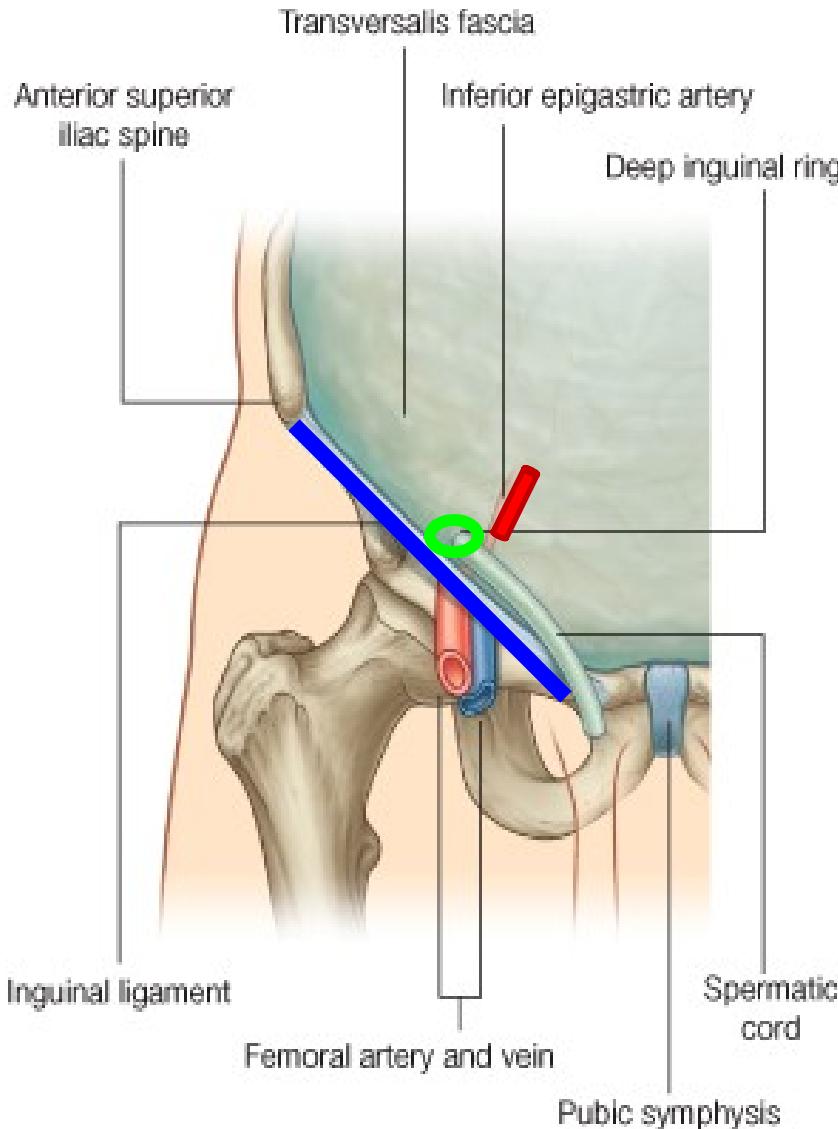
INGUINAL CANAL

- Site : above and parallel to the medial half of the inguinal ligament.
- Length: 4cm.
- , while smaller in females & contains the round ligament of uterus



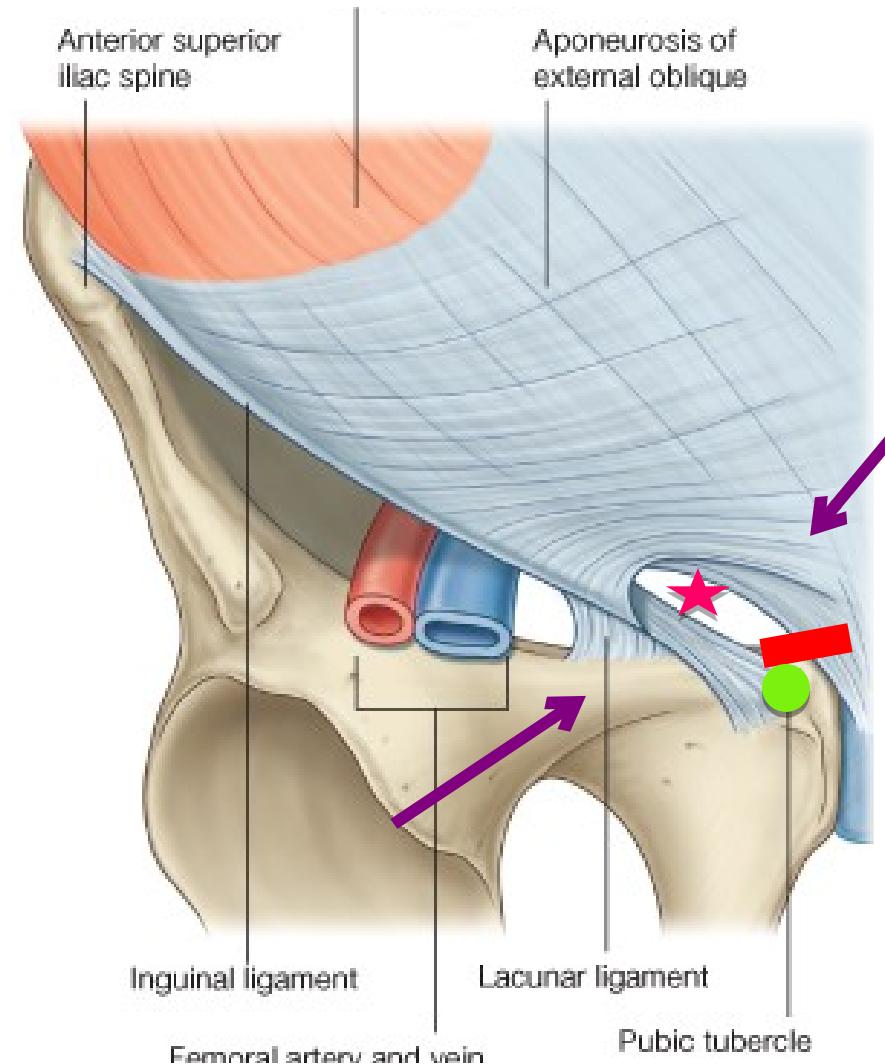
Deep inguinal ring:

- **Def.:** Oval opening in fascia transversalis
- **Site:** $\frac{1}{2}$ inch above midpoint of inguinal ligament
- **Relations:**
- It lies **lateral to the inferior epigastric vessels.**
- Its margins from fascia transversalis are prolonged around the spermatic cord & testis to form **the internal spermatic fascia.**



Superficial inguinal ring:

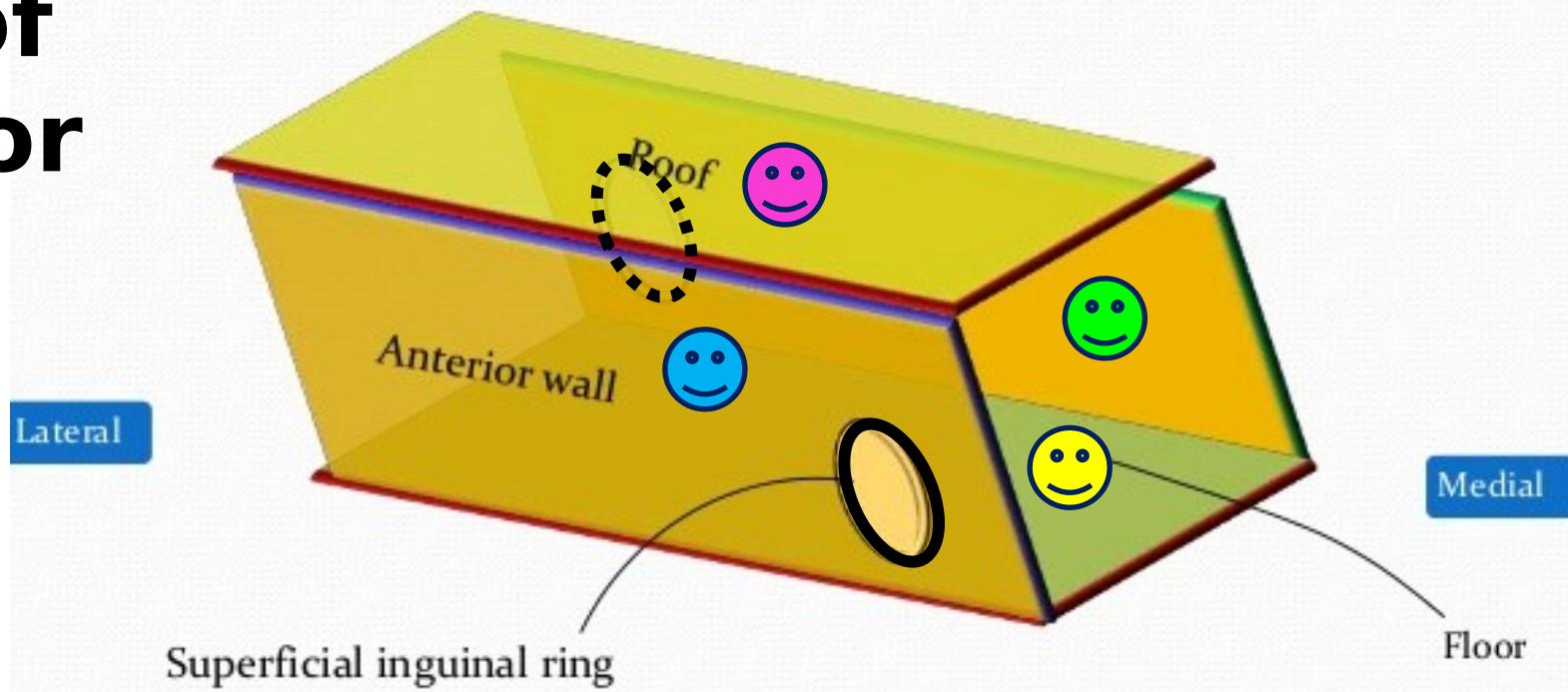
- **Def:** Triangular opening in external oblique aponeurosis.
- **Site:** above pubic tubercle
- **Relations:**
Base: pubic crest.
Sides: Crura (medial & lateral).
- **Margins are prolonged around testis & spermatic cord forming external spermatic fascia**



The inguinal canal has :

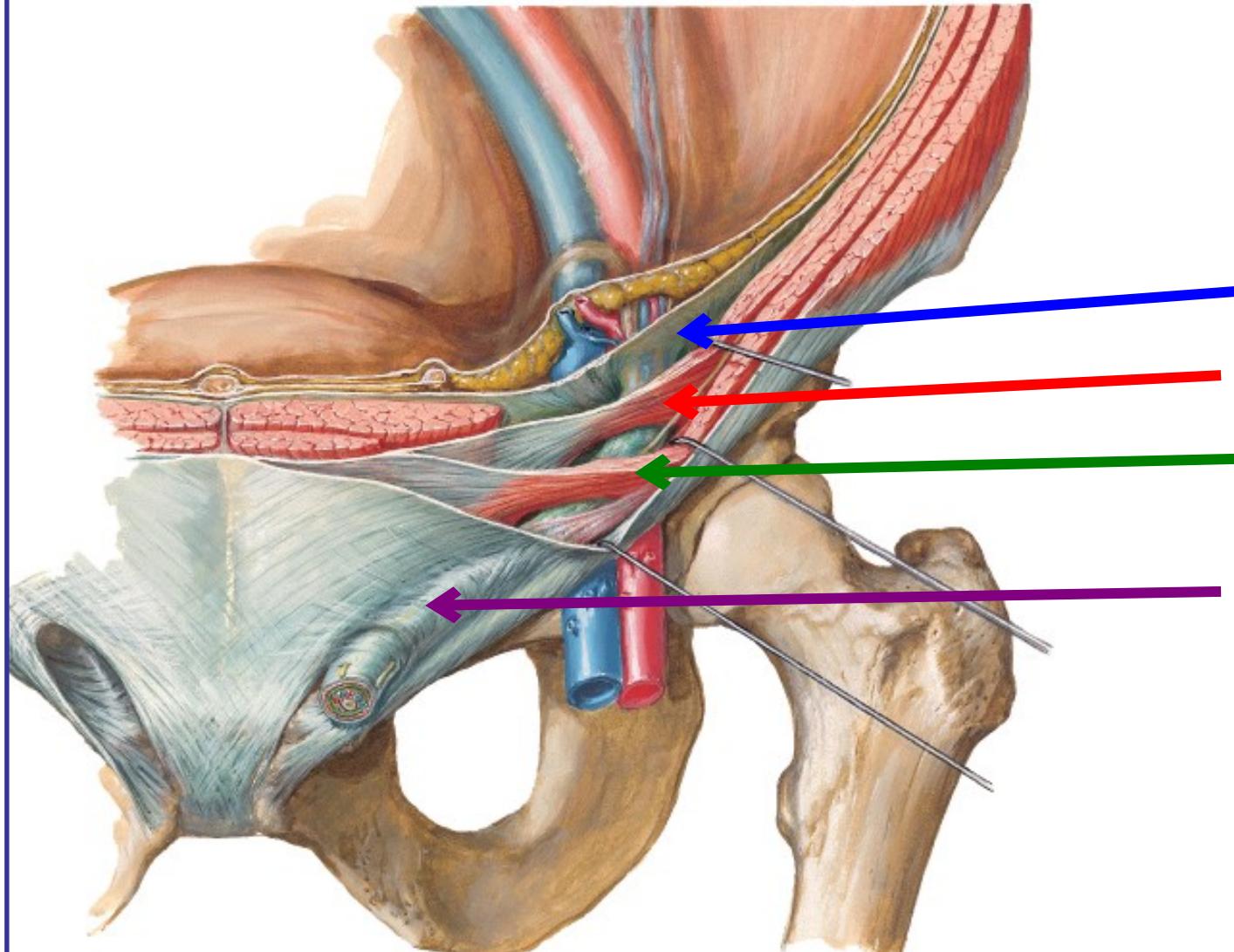
- 1)Anterior wall
- 2)Posterior wall
- 3)Roof
- 4)Floor

Inguinal canal



INGUINAL CANAL

- ❑ Fascia transversalis
- ❑ Transversus abdominis
- ❑ Internal oblique
- ❑ Aponeurosis of external oblique

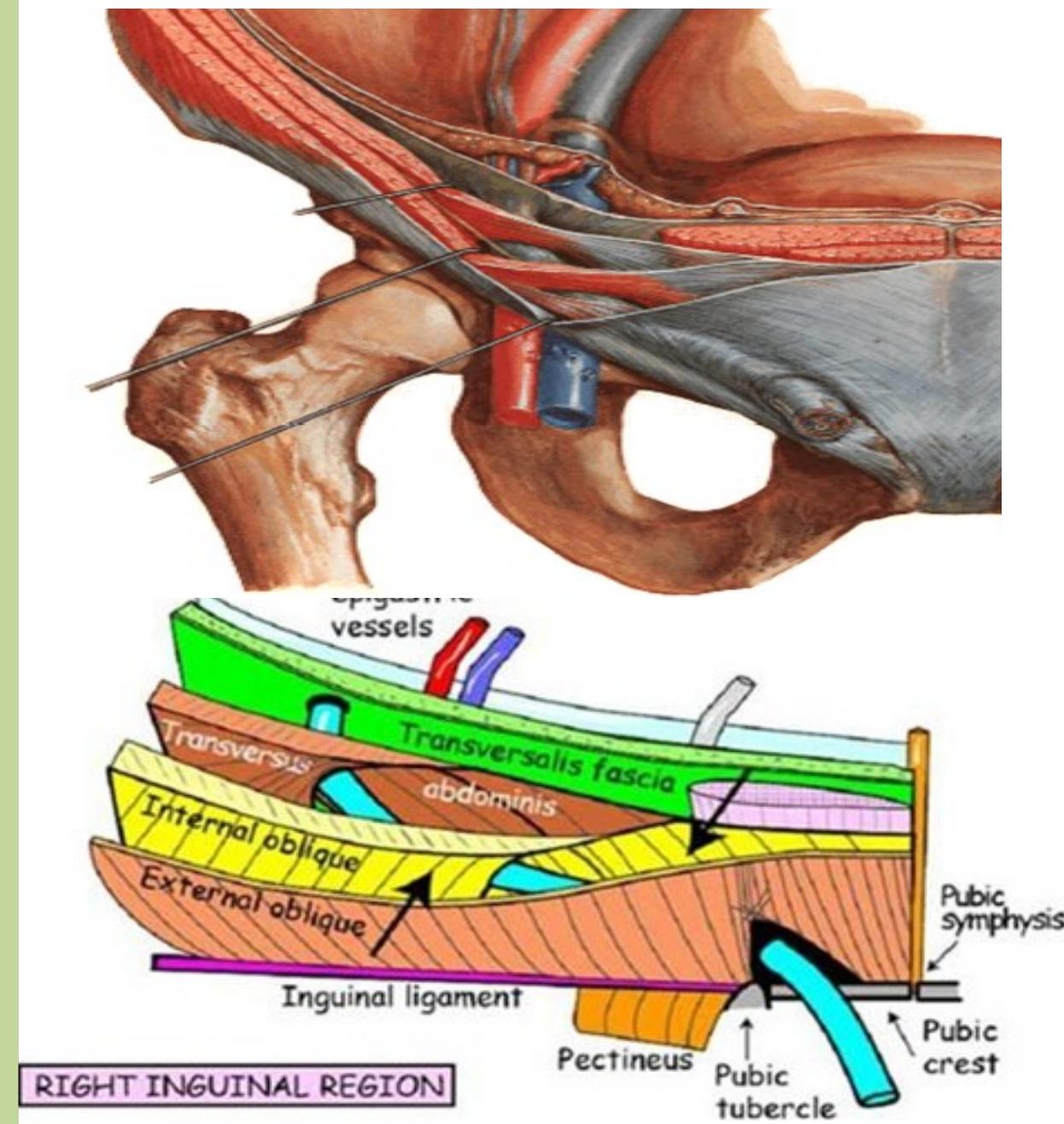


Boundaries of inguinal canal: 2 structures in each wall

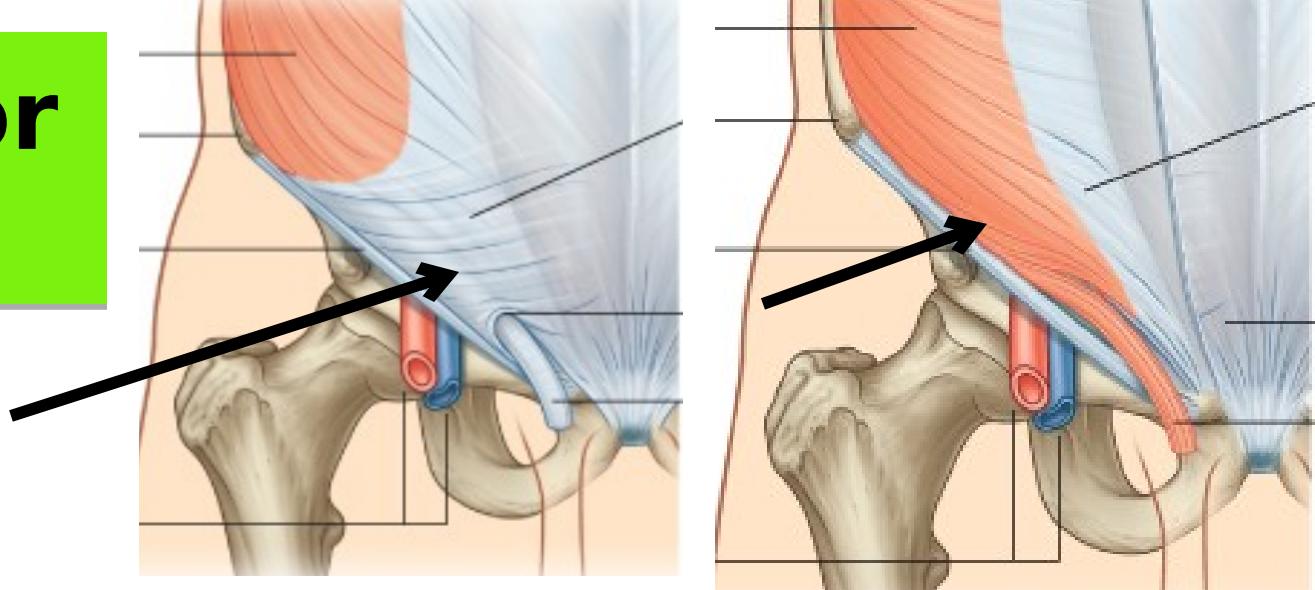
1) **Anterior wall:**
external oblique along its whole length + internal oblique on lateral $\frac{1}{3}$

2) **Roof:** Lower arching fibers of internal oblique & transversus abdominis (conjoint tendon)

3) **Posterior wall:**
Fascia transversalis along its whole length + conjoint



Anterior wall



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- **Along the entire length of the canal by the aponeurosis of the external oblique muscle.**
- **It is reinforced laterally by the fleshy fibers of internal oblique muscle**

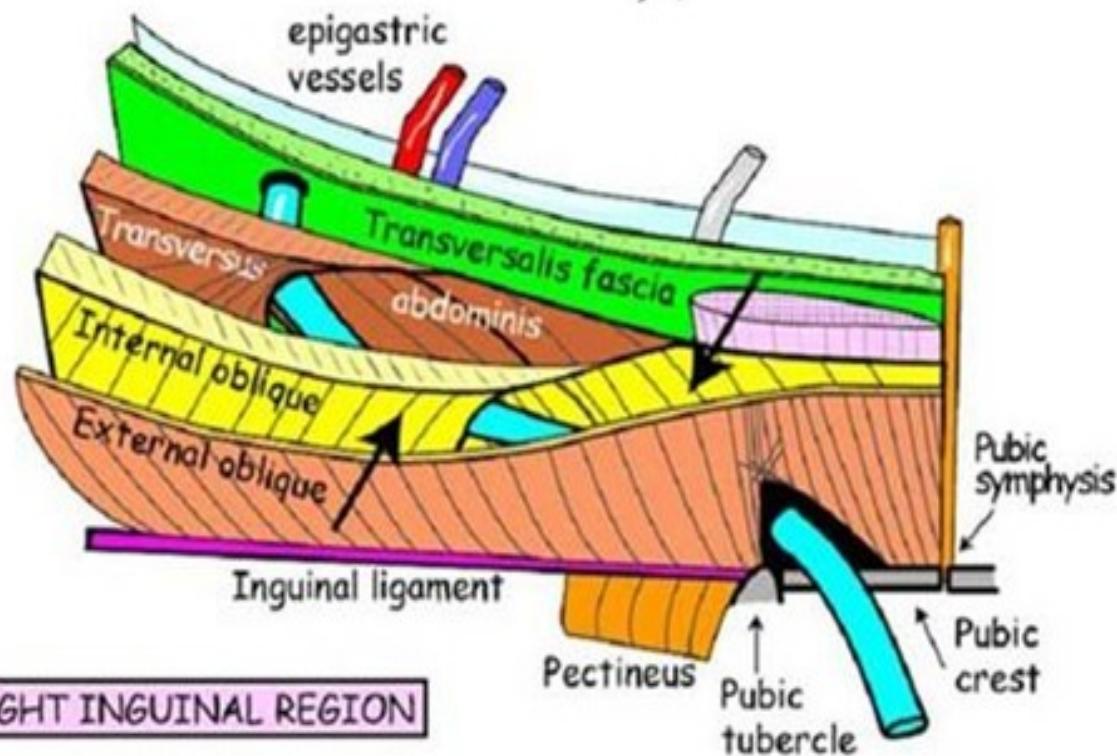
The anterior wall is weakened medially by the presence of the **superficial inguinal ring.**

Posterior wall

- The entire length of the canal by the **fascia transversalis**.

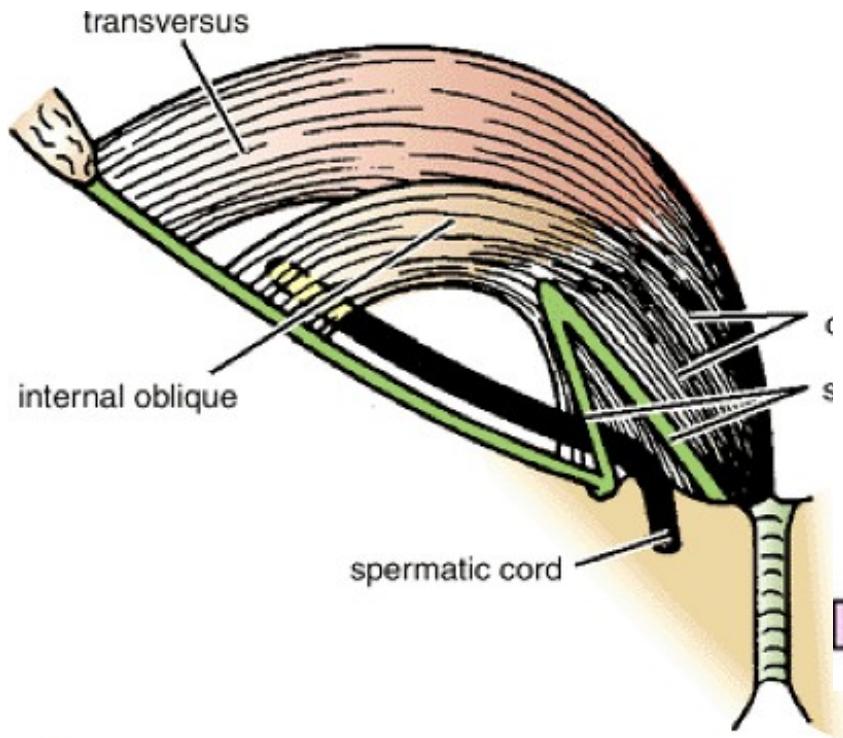
- It is reinforced along its medial one-third by the **conjoint tendon**

RIGHT INGUINAL REGION

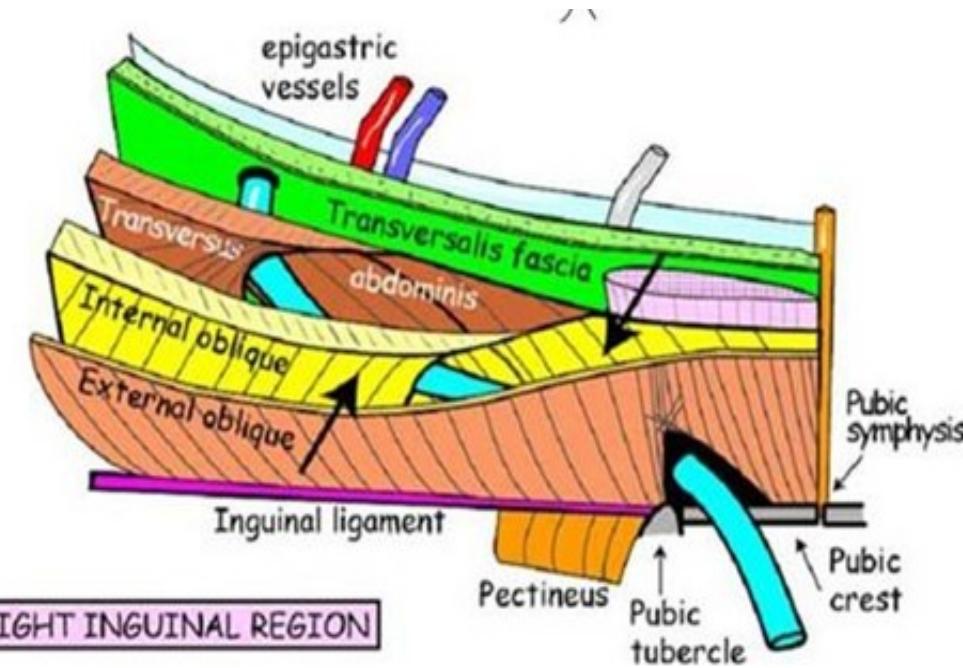


The position of the conjoint tendon posterior to the superficial inguinal ring provides support to a potential point of weakness in the anterior abdominal wall.

Roof is formed by arching fibers of internal oblique and transversus abdominis

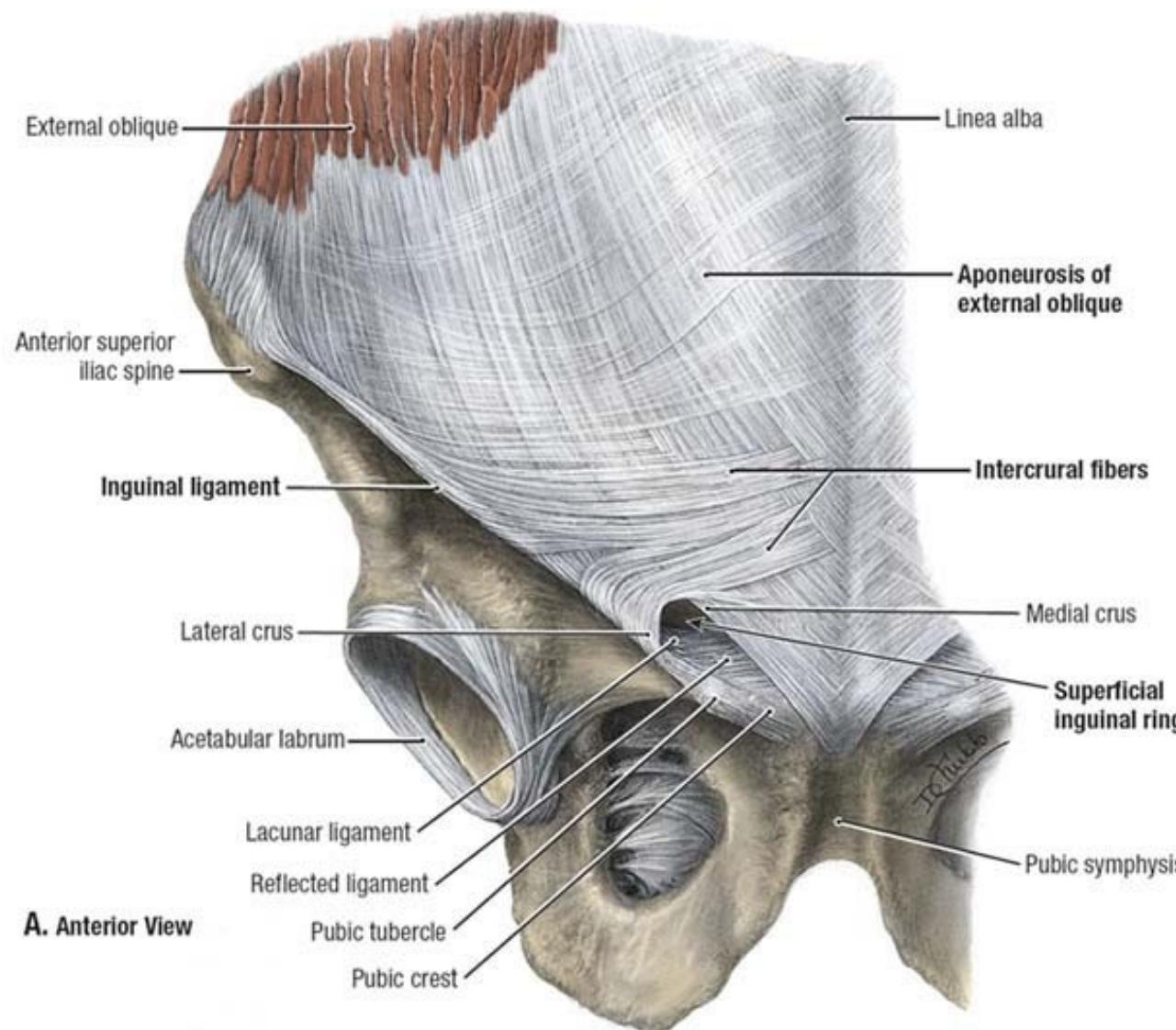


RIGHT INGUINAL REGION



Floor

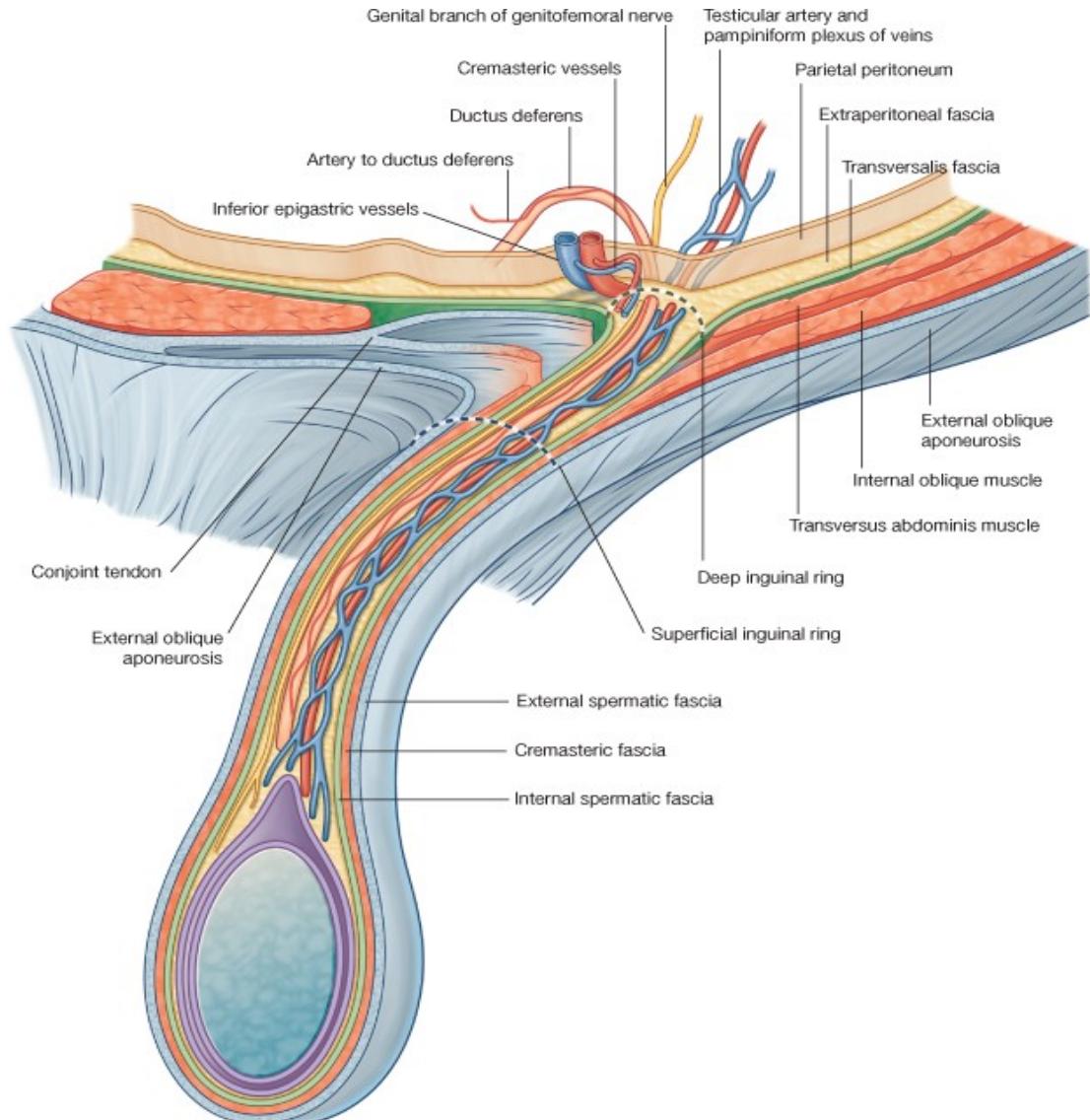
- The floor is formed by concave upper surface of the inguinal ligament & by the lacunar ligament at its



Contents

1) The spermatic cord in males, the round ligament of the uterus in females

2) The ilioinguinal nerve (L1) in both males



Inguinal hernia

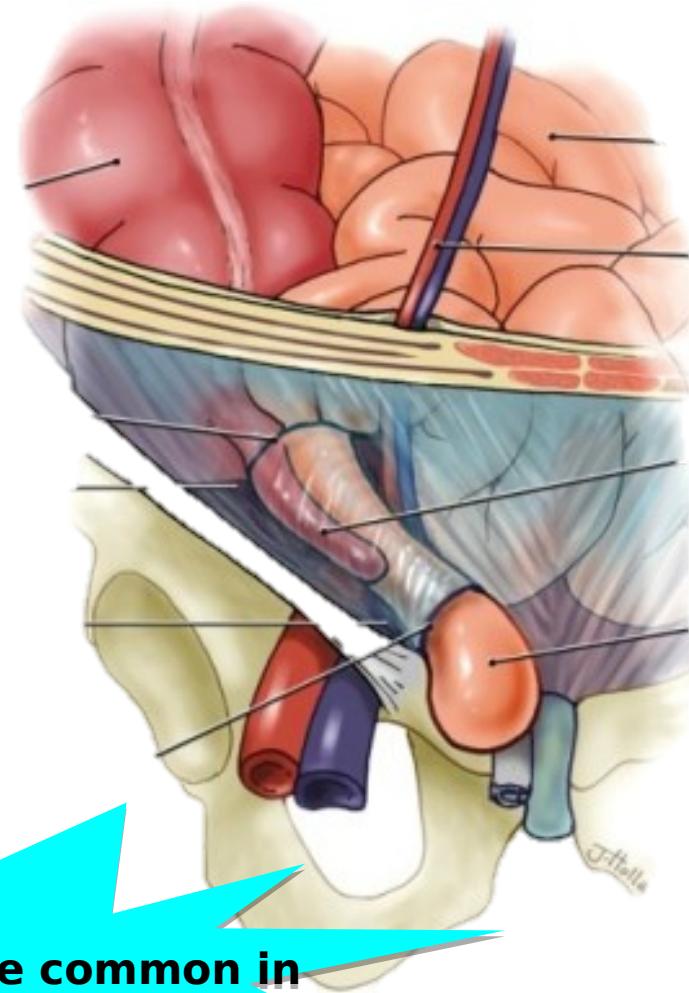
- **Hernia is the protrusion of abdominal contents (usually intestine) within a sac of peritoneum through a weak point in the abdominal wall**

- **2 types:**

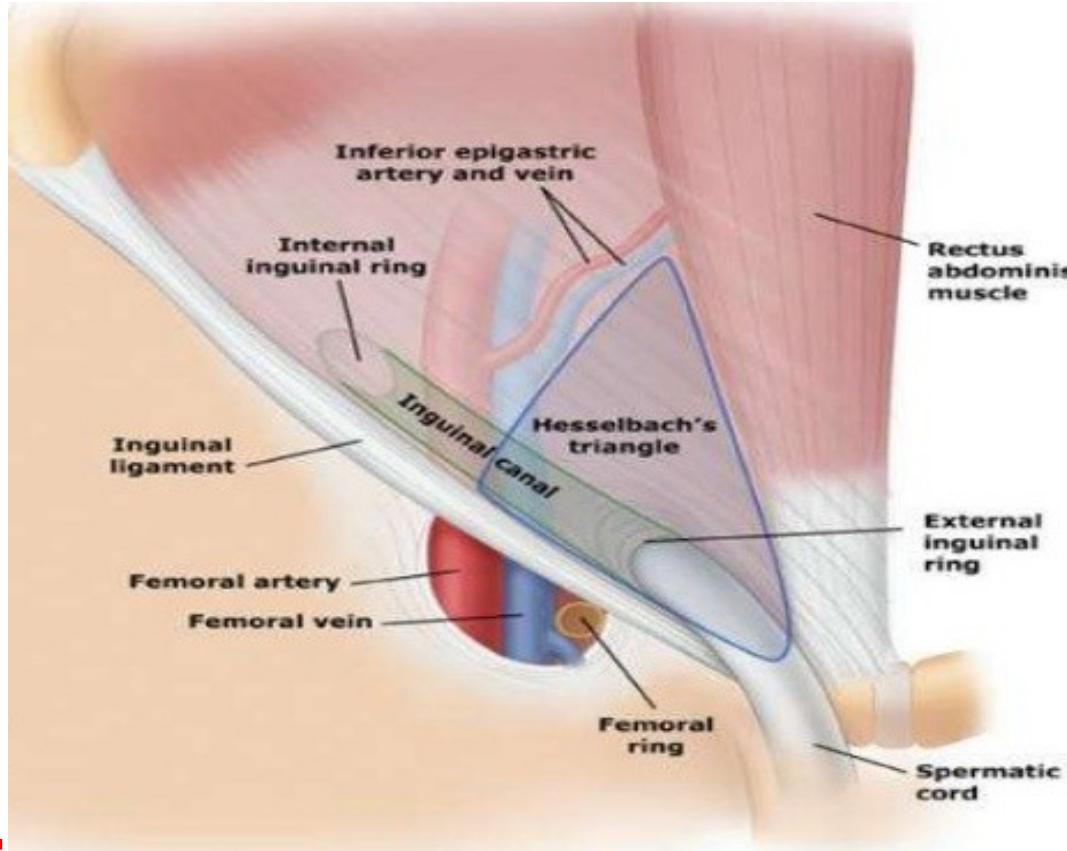
- 1. Indirect (oblique) inguinal hernia.**

Inguinal hernias are more common in males due to the wider & well developed

- 2. Direct hernia.**



Inguinal hernia



Indirect
(oblique)
inguinal
hernia



Indirect inguinal

HERNIATION TYPES

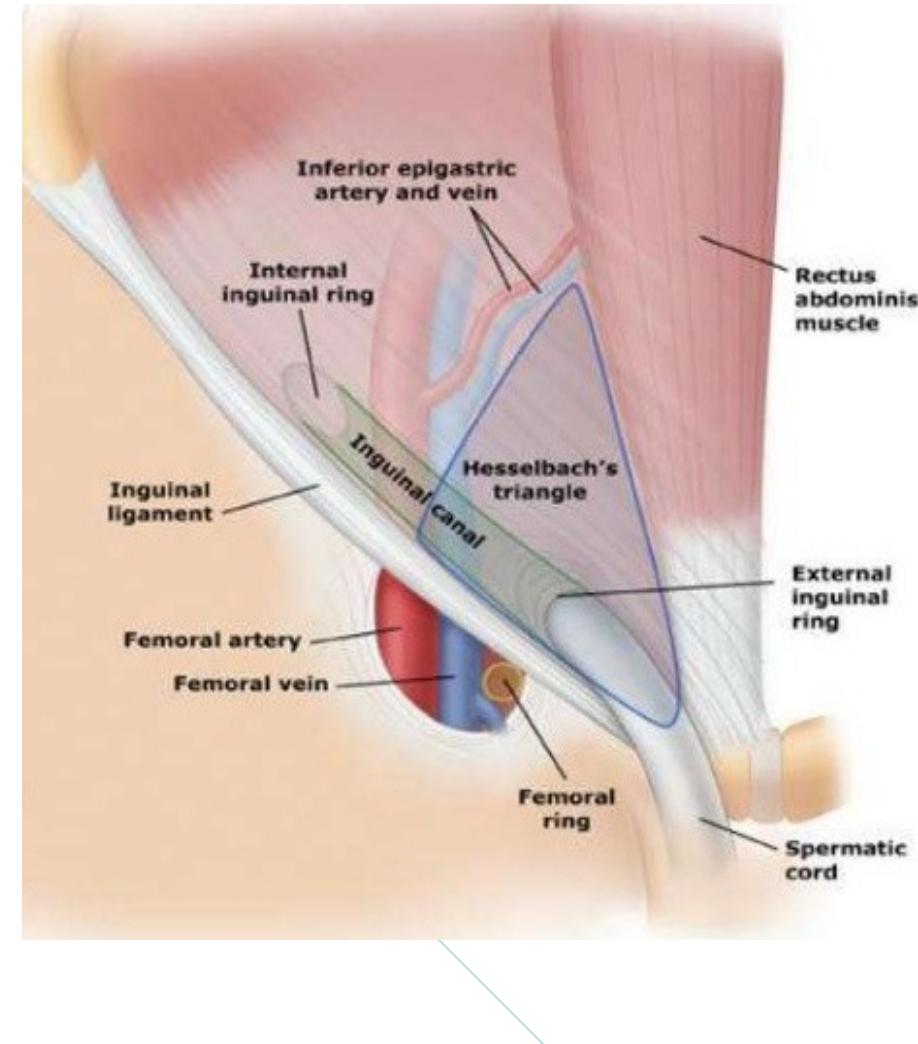


Direct inguinal

Direct
inguinal
hernia

Inguinal Triangle (Hesselbach's triangle)

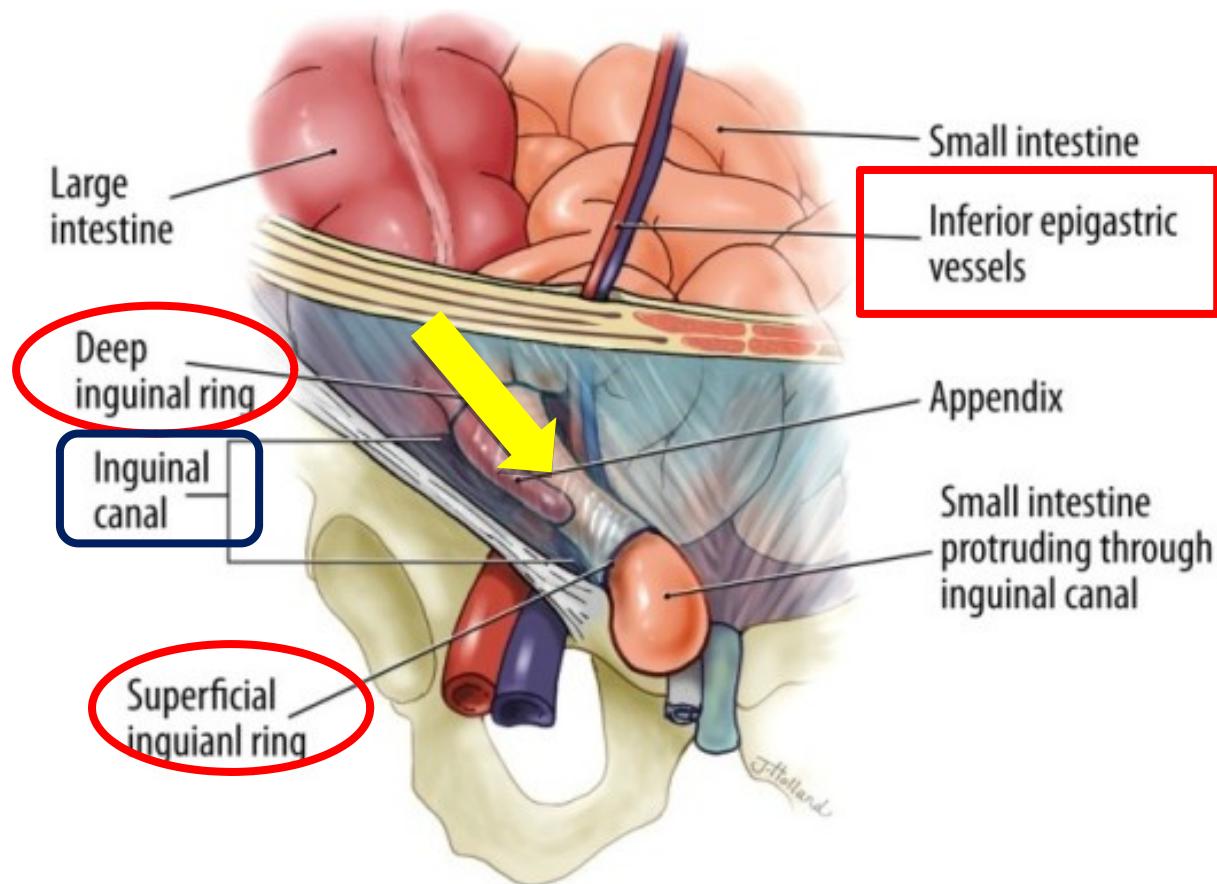
- **Laterally:** Inferior epigastric artery
- **Medially:** Lateral border of rectus abdominis
- **Inferiorly:** Inguinal ligament
- ***This triangle is the site of direct inguinal hernia.***



Oblique inguinal Hernia	Direct inguinal Hernia
More frequent 80-90%	Less frequent 10-20%
Usually congenital (infants & young adults)	In old age (over 50yrs)
Usually unilateral	Usually bilateral
Bulges through deep inguinal ring ↳ scrotum	Bulges through inguinal triangle ↳ doesn't reach scrotum
Neck of hernia sac is lateral to inf. epigastric vessels	Neck of hernia sac is medial to inf. epigastric vessels
Line of descent is downwards & medially	Line of descent is directly forward through posterior wall of inguinal triangle
Commonly obstructed (strangulated) at deep inguinal ring	Rarely obstructed as it has a wider neck

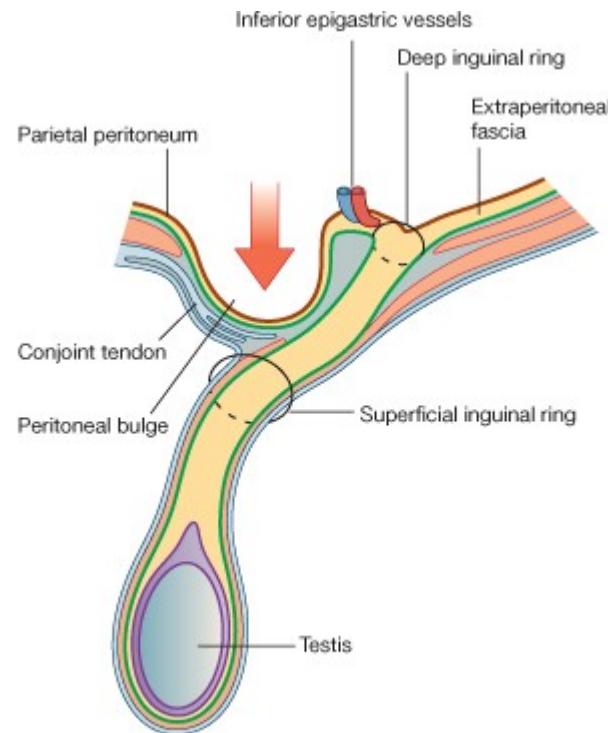
Indirect (oblique) inguinal hernia

- **Herniation starts at deep inguinal ring, along the canal to the superficial inguinal ring.**
- **Arises lateral to the inferior**

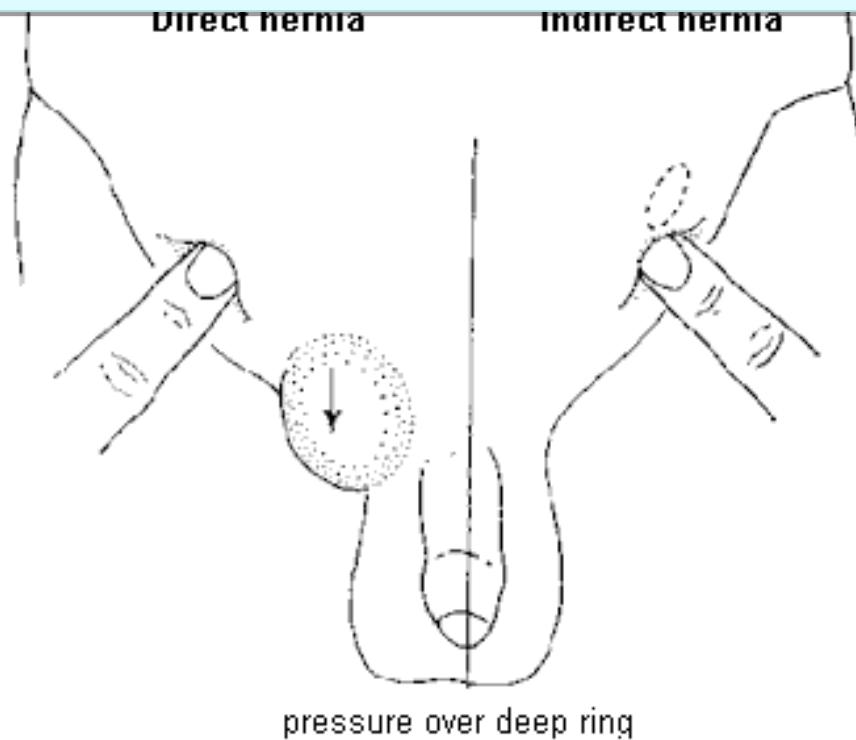


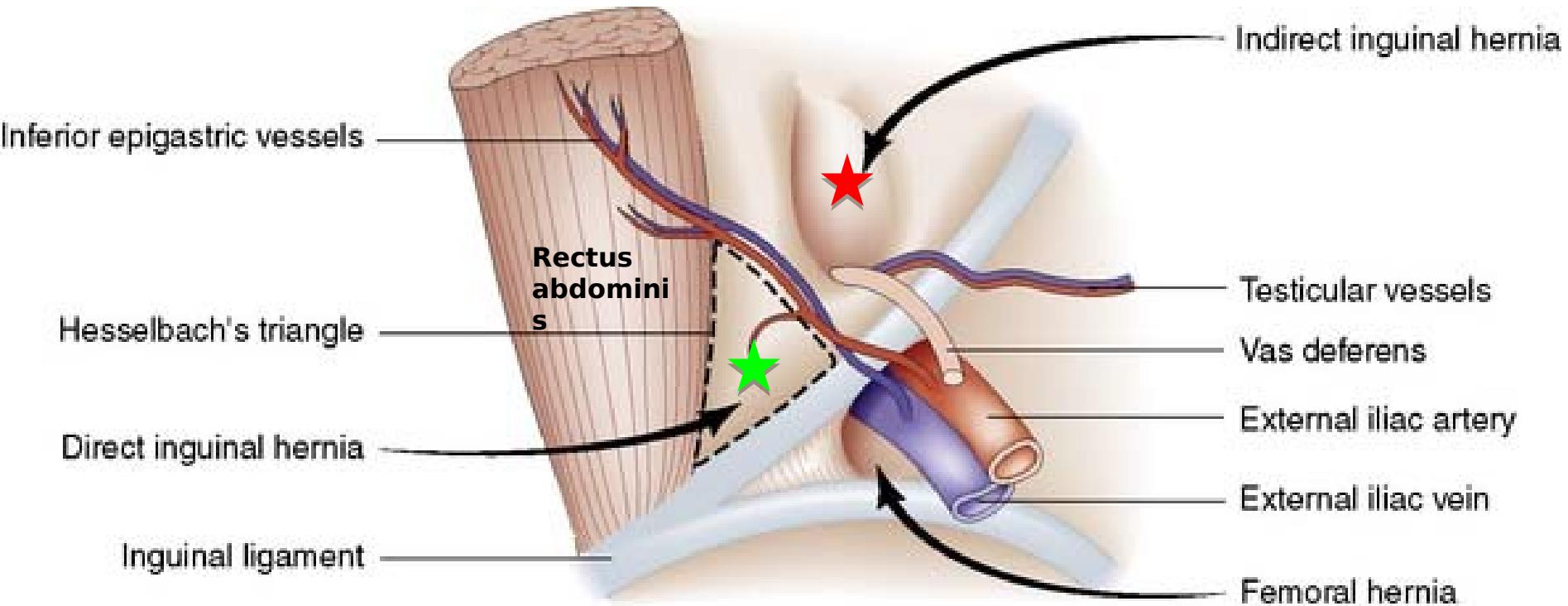
Direct inguinal hernia

- **Hernia pushes directly forward through the posterior wall of the inguinal canal (i.e through the inguinal triangle)**
- **Arises medial to the inferior epigastric artery.**
- **Usually doesn't descend to the scrotum.**



To differentiate between direct & indirect hernia by *deep inguinal ring test*





- 1) **Oblique inguinal hernia arises lateral to inferior epigastric**
- 2) **Direct inguinal hernia arises medial to inferior epigastric**

Quiz

Which of the following structures forms the floor of the inguinal canal?

- A. Fascia transversalis
- B. Conjoint tendon
- C. Reflected part of the inguinal ligament
- D. External oblique aponeurosis
- E. Inguinal ligament

Quiz

The deep inguinal ring is a hole in :

- A. External oblique aponeurosis
- B. Internal oblique aponeurosis
- C. Transversus abdominis aponeurosis
- D. Fascia transversalis
- E. Extraperitoneal fatty tissue

Thank You